



Market Research

Environmental Technologies

Mexico

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The Hazardous Industrial Waste Equipment and Services Market in Mexico

Summary

This sub-sector analysis report provides information regarding the market for equipment and services that are used for the collection, storage, transport, recycling, and final disposition of hazardous materials. It also mentions some aspects in regards to the soil remediation industry as well as the Mexican medical waste market.

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Summary

This sub-sector analysis report provides information regarding the market for equipment and services that are used for the collection, storage, transport, recycling, and final disposition of hazardous materials. It also mentions some aspects in regards to the soil remediation industry as well as the Mexican medical waste market.

The total market in 2004 for the hazardous waste industry equipment and services was USD 508.9 million. It is expected that the total market will increase to USD 558.0 million by the end of 2005. The total market is expected to continue growing at an average annual growth of 8.8 percent from 2005 to 2006.

The market is becoming more competitive, especially due to efforts by companies from Germany, Canada, Japan, France and other countries.

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Market Overview

The Secretariat for the Environment, and Natural Resources (SEMARNAT) created an enforcement area in 1992 called the Attorney General for Environmental Protection (PROFEPA). SEMARNAT and PROFEPA have been working together with Mexico's major chambers and associations towards the creation of more infrastructure needed to dispose of the large quantities of hazardous waste that is generated annually by the many manufacturing firms located in major industrial areas of Mexico.

Since its creation PROFEPA has been responsible of keeping an inventory of the industries that generate hazardous wastes in Mexico. PROFEPA has a voluntary program called "National Environmental Audits Program" (Programa Nacional de Auditoria Ambiental-PNAA) that is carried out by environmental auditors that visit companies that voluntarily accept to be audited.

According to PROFEPA, at the end of 2004 Mexico had over 13,000 companies in the country that generate some type of hazardous waste, 97 percent are micro, small, and mid-sized, and 3 percent are large corporations. PROFEPA also reports that from 2001 to 2004 a total of 2,145 companies in various areas of the country were voluntarily audited and from that total, 90 percent of the firms are considered as "High Risk Industries".

PROFEPA reports that of the total of 8,000 tons of hazardous waste generated annually, at the end of 2004 only 25 percent had some type of treatment and only 10 percent was disposed of properly.

Table 1 below shows the number of firms that at the end of 2004 were authorized by the SEMARNAT's Director General for Integral Management of Dangerous Activities (Direccion General de Gestion Integral de Materiales y Actividades Riesgosas) to provide services for the collection, transportation, storage, recycling, final disposal of hazardous waste, and soil remediation services in the country.

Table 1

Total of firms registered to provide services for the hazardous waste industry.

Sub-sector	Number of Firms
Collection and Transportation	420
Storage	200
Recycling	320
Treatment	80
Incineration	15
Final Disposition	1
Soil Remediation	65
Total	781

Source: Secretariat for the Environment and Natural Resources (SEMARNAT)

Table 2 shows the total of hazardous waste that is generated by geographic zones in the country.

Table 2

Region	Tons/year	Percentage
Northern Border	62	0.8
North	2,006	25.1
Central	5,067	63.4
Gulf of Mexico	602.0	7.5
Southern	262	3.3
Total	8,000	100.0

Source: SEMARNAT

Soil Contamination

Of great concern to SEMARNAT has been the soil contamination that exists in various industrial areas of Mexico, including those where Mexico's Government owned petroleum company (PEMEX) has its installations such as gas and petroleum pipelines, refineries, oil storage tanks. SEMARNAT is also concerned about the Mexican Airport Authority's (Aeropuertos y Servicios Auxiliares-ASA) airports (underground fuel storage tanks); and the Federal Electricity Commission's (Comision Federal de Electricidad-CFE) warehouses that are the depository of transformers, new and old and PCB's (polichlorinated byphenils), etc.

According to the National Environmental Association for Soil Remediation (Asociacion Nacional de Restauradores Ambientales) and SEMARNAT there are over 1,000 sites in the country that need some type of soil remediation. Those sites are located on Mexico's border areas where the in-bond companies (maquiladoras) are located (Tijuana, Mexicali, Ciudad Juarez, Matamoros, etc), mining areas (Coahuila,

Chihuahua, Durango, Zacatecas, San Luis Potosi, State of Mexico, Queretaro, Puebla, Hidalgo, Guerrero, etc.) and where chemical companies have their installations (States of Mexico, Jalisco, Veracruz, etc.).

Recently SEMARNAT and SSA (Secretaria de Salubridad y Asistencia) approved an environmental standard (NOM-0138-SEMARNAT/SSA-2003) that should help the soil remediation industry to grow as now companies including PEMEX will need to comply with the standard to avoid receiving monetary penalties from PROFEPA. The standard specifies the limits at which the soil needs to be restored to be considered free of hazardous contamination.

During the last ten years SEMARNAT has been researching to identify the best soil remediation treatments available in countries such as Germany, Canada, France, Spain, Italy and the U.S. The research indicates that most "Environmentally Sound Clean Up Technologies" for soil contamination sites are:

1. micro-bio remediation treatment; 2. chemical solution treatment; 3. chemical oxidation treatment, 4. soil stabilization treatment; and 5. other treatment.

SEMARNAT has 65 Mexican certified soil remediation firms (Mexican firms that have alliances with foreign firms) that are currently participating in soil remediation projects with Pemex, CFE, ASA, and large private companies. The treatment, that the firms are using to clean up soil contaminated sites are:

80 percent micro-bio remediation;
5 percent chemical solution;
5 percent chemical oxidation;
5 percent soil stabilization; and
5 percent other treatment.

The micro-bio treatment applied by the certified firms are in 75 percent of the cases onsite and 25 percent offsite (take the contaminated soil in trucks to other places to be treated). PROFEPA auditors are responsible for verifying that at the end of the projects the soil is restored according to the specifications indicated in the NOM-0138-SEMARNAT/SSA-2003.

Medical Waste

With regards to medical waste, Mexico had at the end of 2004 a total of 12,206 public hospitals in the country (11, 744 in urban areas and 7,935 in rural areas) and 16,410 private hospitals, clinics, and medical laboratories. According to officials from SEMARNAT, the total of medical waste generated annually in both sectors is over 500,000 tons and only 40 percent receives some type of treatment, including incineration and disinfection (auto claves)

Market Trends

The hazardous industrial waste equipment and services market is expected to grow at an average of 8.8 percent during the next two years, due to the priorities set by SEMARNAT, PEMEX, CFE, ASA, and private sector entities.

It is estimated by the environmental managers of PEMEX, CFE, and ASA that the three agencies will invest over USD 2 billion during 2005-2006 in contracts with certified hazardous waste and soil remediation firms to reduce or find the best alternatives to dispose of the hazardous waste that they generate and restore areas that have been contaminated during their activities or because they do not have environmental prevention programs to reduce environmental accidents.

To be certified in Mexico as a hazardous waste and soil remediation firm by SEMARNAT, interested individuals must form a Mexican company and present a copy of the articles of incorporation in which they must mention an address that the firm has in the Mexican territory along with a complete application form. For more information on certification procedures, contact Francisco Ceron author of this study.

PEMEX alone has as a budget of USD 1 billion to restore during 2005 and 2006 over 400 sites in the States of Tabasco, Campeche, Veracruz, Tamaulipas and Nuevo Leon; CFE needs to clean 20 warehouses where PCB's are stored as well as other hazardous waste. ASA (Mexico's Airport Authorities) needs to clean underground fuel tank sites of 32 airports. The three entities will publish over 120 national and international tenders during 2005 and 2006 to invite companies to bid on projects.

CFE will start dismantling in 2005, three of the older power plants in the country and according to environmental consultants, over 1.5 tons of hazardous wastes will need to be collected and treated. Also, soil remediation services will be required at the sites. CFE will be publishing tenders on these projects.

Import Market

The figures in the table 3 show that the total market size for the hazardous industrial waste equipment and services will increase from USD 518.8 million in 2004 to USD 570.6 million by the end of 2005. According to SEMARNAT and PROFEPA officials, 80 percent of the hazardous industrial waste equipment and services will be demanded by the public sector and 20 percent by the private sector.

Total imports will grow at an average of 12 percent annually from 2005 to 2006. The growth is higher compared to the 2003 to 2004 period, which averaged 10 percent.

Statistical Data

Table 3

The Hazardous Industry Equipment and Services Market
(USD Millions)

	2003	2004	2005 Estimate *	2005-2006 Growth rate
Import Market	471.6	518.8	570.6	12.0 %
Local Production	41.2	43.3	45.5	5.0 %
Exports	3.9	4.1	4.3	5.0 %
Total Market	508.9	558.0	611.8	8.8 %
Imports from U.S.	353.8	389.1	427.9	10.0 %

* The 2005 estimate is a projection of data available to April 2005.

Exchange Rates: 1 USD = 10.50

Sources: Statistics from the Mexican Import and Export Bank (Bancomext); Secretariat of Economy (Secretaria de Economia); SEMARNAT; National Institute of Ecology (INE); National Council of Environmental Executives (CONIECO), and interviews with end-users and distributors of equipment and services for the hazardous industrial waste.

Estimates from SEMARNAT, PROFEPA and private sources such as CONIECO, CONCAMIN (National Confederation of Industrial Chambers), and private consultants, indicate that from the total market 70 percent is equipment (imported by certified engineering firms) and 30 percent are services needed by end-users.

Best Prospects

According to the research conducted, below is a short list of the products and services that will be most in demand between 2005 to 2006.

PRODUCTS: Filtration membranes, corrosive liquid containers, burners, industrial autoclaves, tubular catalytic reactors, fiber crushers, blade crushing machines, garbage compactors, mixers, special vehicles, air and water separators, laboratory and analytical equipment, etc.

SERVICES: detection of contaminated sites; services for the elimination of sources of contamination; customized engineering proposing feasible remediation technologies and other services; chemicals for bio-remediation, engineering services for the implementation of spill prevention and control programs, risk analyses for the different materials and facilities.

Competition

The main third country competitors are Germany, Canada, Japan, France, followed by others. The corresponding percentages are given in Table 4.

Table 4
Origin of Imports
Market Share (%)

Market share	2003	2004	2005 Estimate
US	75	75	75
Germany	8	7	7
Canada	7	7	6
Japan	3	5	3
France	2	4	3
Others	5	3	6

Third-country competitors

Third country firms usually have a representative in Mexico or have a strategic alliance with a local water resources equipment firm. They have actively promoted their interests during the last five years by participating in trade shows and technical seminars in Mexico's leading cities. When shows and seminars are held in their countries, they may invite government officials and potential representatives to participate with all expenses paid. These visits include tours of research institutions that many times result in cooperation agreements, exchange of research information, and technical training programs.

End Users

Principal Government Sector End-users:

The Government-owned petroleum company PEMEX is the number one consumer of hazardous waste engineering services and soil remediation services. It is followed by CFE, and ASA.

Private sector End-users

This includes chemical, rubber, plastic, oil, and coal derivative companies. This sector includes over 7 thousand companies operating over 14 thousand industrial plants. Of the total 98 percent are micro-small, medium sized companies and 2 percent are companies such as BASF, DUPONT, CHEVRON TEXACO, SHELL, AMOCO, etc.

Within the Mining sector, the major end-users are Grupo Nacobre; Grupo Acerero del Norte; Grupo Frisco; Industrial Minera Mexico; Industrias Penoles, etc. The majority of the hazardous waste generated by the mentioned companies is dumped in open pits around the mining production areas of the states of Coahuila, Zacatecas, Chihuahua, Durango, Hidalgo, Sonora, Puebla, San Luis Potosi, and Guanajuato.

Important importers of hazardous industrial waste equipment are 700 plus firms that are certified by SEMARNAT to provide services such as the collection, transport, recycle hazardous wastes, etc.

Market Access

There are no barriers for importing hazardous industrial waste equipment. However, the Mexican import law is very strict on the required documentation. While it is not required, it may be advantageous when selling equipment to use a reputable customs broker to properly prepare the paperwork needed. The basic documents required to import potable water resources equipment into Mexico include:

- 1) Import petition.
- 2) NAFTA Certificate of origin.
- 3) Commercial bill.
- 4) Insurance and freight bills.

The products qualifying as North American must use the NAFTA Certificate of Origin in order to receive preferential treatment. The exporter or broker may issue such a certificate. It does not have to be validated or formalized. Other entities that may issue a Certificate of Origin include government agencies, producers, exporters, industrial and commercial chambers of commerce, and associations that are legally authorized in the United States. Like the U.S., Mexico uses the Harmonized Tariff System (H.S.). However, Mexico uses only eight digits while the U.S. uses up to ten digits. The first six digits used under the HS system are identical for all countries, the rest may vary.

Table 5 shows the import duties assessed on some hazardous waste industry equipment.

Table 5

Import Duties for selected Hazardous Industry Equipment

Harmonized Number	System	Product	NAFTA Tariff Reduction Schedule	Current Import Duties N/O*
90272001		Analyzers	A	0/2
3925.10.01		Polymer Deposits	C	0/15
3926.90.16		Filtration Membranes	C	0/10
6909.11.07		Corrosive Liquid Containers	C	0/15

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7017.10.11	Condensing crystallizers, and Refrigerators	B	0/12
7309.00.01	Steel Containers	B	0/12
8416.20.01	Burners	A	0/15
8419.89.21	Industrial Autoclaves	B	0/15
8479.89.14	Tubular Catalytic Reactors	B	0/15
8705.90.99	Special Vehicles	C	0/15
8514.30.03	Industrial Ovens	B	0/15
8465.99.05	Fiber Crushers	B	0/15
8474.20.03	Blade Crushing Machines	B	0/15
8474.20.06	Hammer or Percussion Crushers	A	0/15
8609.00.01	Deposit containers, cistern containers for transportation	B	0/30

*In the 4th column it shows import duties for products from NAFTA (N) and non-NAFTA countries (O). Example 0/2, column shows import duties for products imported from NAFTA countries (0) and with which Mexico has no free trade agreement (2).

Category A: Duties on U.S. products were fully eliminated on January 1, 1994.

Category B: Duties on U.S. products were fully eliminated on January 1, 1998.

Category C: Duties on U.S. products were fully eliminated on January 1, 2003.

NOMS:

NOM CERTIFICATION: (Normas Oficiales Mexicanas - Mexican Official Standards). There are no norms applicable for the hazardous industry equipment. If companies want to build a hazardous waste treatment facility, they must follow the below standards.

NOM—055-SEMARNAT-2003 (NOM is for the requirements to select a site to build a facility to treat, recycle, recover and final destination of industrial wastes)

NOM-056-SEMARNAT-1993 (NOM is for the design and building of complementary infrastructure for hazardous wastes)

For soil restoration, firms must follow the below standard:

NOM-0138-SEMARNAT/SSA-2005 (standard to restore a contaminated site)

The Commercial Service of the U.S. Embassy in Mexico City has an officer who follows developments in the standards area:

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SERVICES

It is a requirement to be registered by SEMARNAT to be authorized to provide services related to the hazardous industrial waste including for soil remediation.

The process is simple and the authorization can be granted from 1 to 5 years with an option to be renewed. Companies can do it electronically by consulting SEMARNAT website (www.semarnat.gob.mx/dgmic/index.shtm).

For companies that would like to register their services for the medical waste industry, they must register with the Mexican Health Secretariat (www.ssa.gob.mx).

Companies that would like to participate in soil remediation projects with PEMEX, also need to be registered as suppliers of services and present their SEMARNAT registration number when participating in tenders. PEMEX's website to be registered is www.pemex.gob.mx.

IMPORT DUTIES AND TAXES

According to the 1998 modifications in the Mexican customs law, the participation of a customs broker is not obligatory for imports if all legal and technical requirements are met. In the same change, in order to import some goods, it is now required that the importer be registered as such with the Secretariat of Treasury and Public Credit (Secretaria de Hacienda y Credito Publico-SHCP). The participation of a customs broker is suggested when the exporter is not familiar with the Mexican standards and customs processing procedures.

Almost all hazardous industry equipment from NAFTA countries are exempt from any import duties. Duty for non-NAFTA countries range from 3 to 15 percent for the same products. For specific tariff information on non-NAFTA rates for the environmental industry contact the Commercial Service's Francisco Ceron in Mexico City. His contact information is listed in the end of this report. He may also help with information on environmental standards.

A 15 percent Value Added Tax (IVA) is assessed on the cumulative value, consisting of the U.S. plant value (invoice) of the product, plus the inland U.S. freight charges, any other costs listed separately on the invoice such as export packing plus the duty. The importer will pay other IVA fees for such services as the inland

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Mexico freight and warehousing. The IVA tax is only 10 percent for border area destinations. The IVA is recovered at the point of sale.

The following example shows the difference in import costs for a NAFTA firm versus a non-NAFTA firm. The example also shows the effect of the 15 percent VAT on the final import price versus a non-NAFTA manufacturer's price.

Direct Import Cost Template

	US Firm	Non-NAFTA Firm
Base Price	\$100.00	\$100.00
Freight (estimated 8.0%)	8.00	8.00
Insurance (1.5% of C&F)	1.62	1.62
Dutiable base =CIF	109.62	109.62
Ad Valorem Duty (3.0%)	0	3.29
Value Added Tax (15.0%)	16.44	16.94
Total	\$126.06	\$129.85
Port Costs (Unloading, storage, Est 6.0% CIF)	7.56	7.79
Freight forwarder fee (Est. 1.5% CIF)	1.64	1.64
Bank charges (2.0% of FOB price)	2.00	2.00
GRAND TOTAL	\$137.26	\$141.28

Note:
As of July 1, 1999 NAFTA originating goods are no longer subject to the 0.8% customs processing fee. A NAFTA certificate of origin is needed to take advantage of this exemption.

Temporary import permits are issued by the Mexican Economy Secretary (Secretaria de Economia) to Mexican importers to carry out projects with the Federal and state potable water resources agencies or private sector clients. Permits can be issued for a maximum period of six months. Potable water equipment imported under a temporary import permit do not pay the value added tax.

CERTIFICATE OF ORIGIN: A certificate of origin is required from all foreign suppliers or exporters. If the product qualifies as North American in content, the exporter must use the NAFTA Certificate of Origin in order to benefit from preferential treatment under NAFTA. This is the responsibility of the exporter and the forms are available from the U.S. Customs Service, freight forwarders, or local U.S. Chambers of Commerce. The certificate should contain at least the following:

- Name of Exporter
- Name of Producer
- Tariff Classification of Product
- Description of Goods (similar to invoice)
- Number of the Official Invoice

FREE SALE CERTIFICATE: This certificate is required for all products entering Mexico. This certificate proves that the imported goods are also sold in the country of origin. A letter from the local Chamber of Commerce is

sufficient proof and the importer would present it at the time of importation.

LABELING REQUIREMENTS: According to Mexico's Federal Law on Metrology and Standardization, hazardous industrial waste equipment sold in Mexico are exempted from having a label in Spanish affixed to each. Listing the required information in Spanish on the shipping container will satisfy the labeling requirement. The Spanish information on the box must contain, at a minimum, the following information:

- Name and address of the importer
- Importer's Ministry of Finance Taxation Number (RFC number and/or their Industry Association registration number)
- Exporter's name and address
- Trademark or commercial brand name of the product
- Product description whenever the product is packed in such a form that it is not visible
- Use, handling, and care instructions for the product, as required
- Country of origin
- Warnings or precautions on hazardous products
- Size, if applicable, Mexico's Federal Law on Metrology and Standardization stipulates that all weights and measures must be in the metric system.

Market Entry

Oftentimes, the decision to select a hazardous industrial waste equipment and services provider depends on the demonstrated commitment to service after the sale has been made. This has been the most effective tool that third country manufacturers have used to penetrate the market. They offer to have their maintenance personnel at the clients' facilities in no more than 48 hours after a service call is made. The availability of required spares is the natural complement to the presence of their technicians.

Customers in the hazardous industrial waste equipment and services are demanding uniform quality control, compliance with international standards, productivity, lower production costs, just-in-time deliveries and above all, reliable local service and maintenance programs. This last factor has become, in many instances, even more important than pricing or financing in the hazardous industrial waste equipment purchasing decision.

Opportunities for Profile Building

U.S. firms wishing to promote their products and/or services to Mexican representatives and/or buyers can do so by participating in the trade exhibitions program of Commercial Service Mexico, held annually in Mexico through privately held exhibitions and/or seminars.

Advertisements in specialized magazines are very effective, especially in publications distributed to members of associations or distributed to large potential end-users, equipment distributors, contractors, and government

officials.

Upcoming Trade Shows

ENVIRO-PRO is a U.S. Department of Commerce Certified Trade Show and it is the leading event in Mexico related to the environmental industry. For the third year in a row the U.S. Commercial Service Mexico will be participating with a centrally-located USA Pavilion to offer U.S. companies the opportunity to exhibit their products and services. In addition to having booth space in the Pavilion, participants will be offered the Gold Key Service (separate fee), enjoy access to private meeting space, receive valuable market research at no cost and a breakfast briefing.

Name of Event:	ENVIRO-PRO 2005
Date of Event:	October 12-14, 2005
Location:	Mexico City, Mexico
Venue:	World Trade Center
Frequency of Event:	Annual

KEY CONTACT: For further information, please contact.

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USEFUL websites on the industry:

Secretariat for the Environment and Natural Resources: <http://www.semarnat.gob.mx>

National Institute of Ecology: <http://www.ine.gob.mx>

Attorney General for Environmental Protection: <http://www.profepa.gob.mx>

National Environmental Association for Soil Restoration: <http://www.anarac.com.mx>

National Council of Environmental Executives: <http://www.conieco.org>

PEMEX: <http://www.pemex.gob.mx>

CFE: <http://www.cfe.gob.mx>

Secretariat of Health: <http://www.ssa.gob.mx>